Zahra Anvarian

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EDUCATION

Iran University of Science and Technology (IUST) **Tehran, Iran**
*B.Sc. in Computer Engineering with a concentration on **AI*** *Sep 2016 - Jun 2021*
Ranked $\mathbf{4}^{th}$ among Iran Universities based on QS Ranking

- GPA (Last two years via 60 credits): **3.8/4 (18.15/20)**

Bachelor's Thesis: A Persian Dataset for Personality Detection on Twitter
Supervisor: Dr. Sauleh Eetemadi

RESEARCH INTERESTS

- Deep Learning/ Machine Learning
- Computer Vision/ Image Processing
- Natural Language Processing
- Bioinformatics
- Computational Social Science
- Software Engineering

PUBLICATION

1. M. M. Abdollahpour*, Z. Anvarian*, S. Fatehi, and S. Eetemadi, "ParsTSet: A Persian Dataset for Personality Prediction on Twitter," in *The Fourth Annual West Coast NLP (WeCNLP) Summit*, 2021

2. S. Fatehi, Z. Anvarian, Y. Madani, M. J. Mahditabar, and S. Eetemadi, "MBTI personality prediction approach on persian twitter," in *The Sixth Widening Natural Language Processing Workshop (WiNLP)*, 2022 Submitted

RESEARCH EXPERIENCE

Natural Language Processing Researcher at NLP Lab **IUST, Tehran, Iran**
Supervisor: Dr. Sauleh Eetemadi *Sep 2020 - Jun 2021*

- Studied the literature of datasets and models designed for psychological traits prediction.
- Constructed a novel dataset based on MBTI model of personality traits for Persian language.
- Implemented multiple NN models to predict users' personality traits using their tweets.
- Experienced coding NLP models using fastText, doc2Vec, BERT, CNN, LSTM, etc.

Computer Vision Researcher at MAS Lab **IUST, Tehran, Iran**
Supervisor: Dr. Nasser Mozayani *May 2019 - Sep 2020*

- Took computer vision Coursera course for learning more about CV applications.
- Implemented a Neural Style Transfer using VGG-19, which is a pre-trained model, to injected the style to the input image.
- Designed a car detection model using YOLO algorithm to recognize cars in images with the bounding boxes.

TEACHING EXPERIENCE

My responsibilities as a Teacher Assistant included: teaching sessions of classes; holding problem-solving sessions; designing projects, assignments, quizzes, and midterm/ final exams; grading and

providing feedback.

- **Natural Language Processing** (Instructor: Dr. Behroz Minaei) Feb 2022 - Present
- **Computational Intelligence** (Instructor: Dr. Nasser Mozayani) Feb 2021 - Jun 2021
- **Deep Learning** (Instructor: Dr. Mohammad Reza Mohammadi) Feb 2021 - Jun 2021
- **Microprocessor and assembly** (Instructor: Dr. Amir Mahdi Hosseini) Sep 2020 - Jan 2021
- **Embedded System and IoT** (Instructor: Dr. Amir Mahdi Hosseini Monazzah) Sep 2020 - Jan 2021
- **Software Engineering** (Instructor: Dr. Mehrdad Ashtiani) May 2019 - Aug 2020
- **Database Design** (Instructor: Dr. Eisa Zarepour) Feb 2018 - Jun 2018
- **Computer Systems Analysis and Design** (Instructor: Dr. Mehrdad Ashtiani) Feb 2018 - Jun 2018

INDUSTRIAL EXPERIENCE

Artificial Intelligence developer at Dadmatech Company **Aug 2021 - Present**

- Researched in personality detection models by studying related papers.
- Implemented NLP models using fastText, doc2Vec, Transformers, CNN, etc.
- Developed NN models using Tensorflow for predicting personality traits via individual's texts.

Front-end developer at Edgecom Energy Company **Jul 2019 - Dec 2019**

- Worked as a Front-end developer remotely because of the company's location that is in Canada, Ontario.
- Gained work experience out of the university's environment and got familiar more with programming tools.
- Designed and implemented webpages by HTML, CSS, JavaScript, and jQuery.

Front-end developer at Teachent Startup **Feb 2018 - Jun 2018**

- Designed webpages by HTML, CSS, and JavaScript at Teachent, which was an application of a friendly startup of our own in a group of five.

ACADEMIC PROJECTS

Computer Vision Course *Instructor: Dr. Mohammad Reza Mohammadi*

- Car Plate Detection
  - Trained multiple deep CNN models to classify images that contain car plates.
  - Implemented relatively complex deep models using Keras.
  - The best project of the class both in terms of execution time and F1-score
- Deep Neural Network
  - Trained ResNet50 model to classify the Stanford Car dataset images using Keras, and Augmented data with data generator to reduce overfitting.
- Convolutional Neural Network
  - Designed a CNN model, which includes an Inception module with dimension reduction, using Keras to classify the Fashion MNIST dataset images.
- Image Classification via shape, texture, and color
  - Coded the HOG and LBP, which are image feature extractors, using OpenCV to classify the MNIST dataset images by SVM classifier.

Computational Intelligence Course *Instructor: Dr. Nasser Mozayani*

- Inverted Pendulum
  - Solved Inverted Pendulum using Fuzzy Logics (also using RL in Gym env).
- Image Classification
  - Designed a Multi-Layer Perceptron (MLP) model to classify the Hoda dataset images, which

like MNIST dataset but in Persian, using Numpy and Keras.

- Hopfield Network
  - Implemented a noise-robust model using Hopfield Network for image detection.
- Radial Basis Function
  - Coded the function approximation using RBF (Radial Basis Function) and MLP.
- Self-Organizing Feature Map
  - Trained a Kohonen's Self-Organizing Feature Map (SOFM), which can map a dataset of 3-Dimensional data into a 2-Dimensional space.

Artificial Intelligence Course *Instructor: Dr. Mohammad Taher Pilevar*

- News Classification
  - Trained the Naïve Bayse and MLP models that classify news documents into two classes: political news and sport one.
- Reinforcement Learning
  - Implemented Reinforcement Learning in games like *WaterWorld* or *PixelCopter*.
- AI Pacman Game
  - Solved Pacman practical Projects of Berkeley University in the most of AI outlines such as Search Problems, Informed Search, CSP, Adversarial Search, Markov Decision Process, etc.

Signal Processing Course *Instructor: Dr. Mohammad Reza Mohammadi*

- Digital Radio
  - Designed a digital radio, which can detect radio channels and play them using Signal Processing.
- Dual-Tone Multi-Frequency
  - Implemented a Dual-Tone Multi-Frequency (DTMF) signaling that each of the 12 keys on the phone sends a specific signal when clicked.
- Yes-No Signal Detection
  - Implemented the Yes-No signal detection that get the voice of Yes or No and detect its signal.

SKILLS

Programming Languages	*Proficient at*: Python, Java, C++, HTML, CSS, JavaScript, jQuery, Bash *Familiar with*: C, Kotlin, Verilog, Assembly
Libraries	TensorFlow, Keras, PyTorch, Numpy, Pandas, Scikit, NLTK, OpenCV, Hazm, HuggingFace, Matplotlib, React, Bootstrap
Tools	Git, Google Colab, Jupyter, PyCharm, Docker, Jira, Trello
Others	Linux, Mac OSX, PostgreSQL, LaTeX, UML, Visual Paradigm, scipy.io
Language Skills	Persian: Native English: TOEFL iBT: Will be taken on October 2022

AWARDS AND HONORS

- Ranked within the top 20% of 80 undergraduate students in the Department of Computer Engineering, Iran University of Science and Technology. 2021
- Ranked **2nd** among all internship posters in the Department of Computer Engineering. 2020
- Selected as a member of Scientific Association of Computer Engineering Department. 2018 - 2019
- Granted **tuition scholarship** for the top 4^{th} Iranian Engineering Universities. 2016
- Ranked within the **top 0.1%** of the candidates in the "Iranian University Entrance Exam" for bachelor's degree. 2016

ONLINE COURSES

DeepLearning.AI All Grade Achieved: 100%

- Convolutional Neural Networks in TensorFlow [Certificate] Oct 2020
- Introduction to TensorFlow for AI, Machine Learning, and Deep Learning [Certificate] Oct 2020
- Natural Language Processing in TensorFlow [Certificate] Oct 2020
- Deep Learning Specialization [Certificate] Sep 2020
- Sequence Model [Certificate] Sep 2020
- Convolutional Neural Networks [Certificate] Aug 2020
- Structuring Machine Learning Projects [Certificate] Aug 2020
- Improving Deep Neural Networks: Hyperparameter tuning, Regularization and Optimization [Certificate] Aug 2020
- Neural Networks and Deep Learning [Certificate] Jun 2020

Coursera Grade Achieved: 100%

- Deep Learning with PyTorch : Neural Style Transfer [Certificate] Apr 2022
- Deep Learning with PyTorch : Generative Adversarial Network [Certificate] Feb 2022
- Deep Learning with PyTorch : Image Segmentation [Certificate] Feb 2022
- Computer Vision - Image Basics with OpenCV and Python [Certificate] Sep 2020

Elsevier Grade Achived: 100%

- Becoming a peer reviewer [Certificate] Apr 2022
- Certified Peer Reviewer Course [Certificate] Jun 2022

SELECTED COURSES

- Computer Vision A^+
- Algorithm Analysis and Design A^+
- Database Design A^+
- Embedded Systems and IoT A^+
- Object-oriented Design of Systems A^+
- Fundamentals of Compiler Design A^+
- Data Transmission A^+
- Electrical Circuits A^+
- Computer Game Design A^+
- Signals and Systems A
- System Analysis and Design A
- Software Engineering A
- Engineering Mathematics A
- Discrete Mathematics A
- Basics Programming A
- Computer Network Security A
- Microprocessor & Assembly Language A
- Computer Design of Digital Systems A

REFERENCES

Available Upon Request